

KSB Recognizes Cottonwood for Southwest Wine Center's Recycled Water Project

COTTONWOOD— Keep Sedona Beautiful honored the city of Cottonwood with their Water Conservation Award of Excellence for 2014 at their recent annual awards ceremony. The members of KSB acknowledged Cottonwood's water conservation strategies and the exemplary reclamation project that pipes recycled water directly to the vineyards of Yavapai College's Southwest Wine Center. The project provides a tremendous savings of potable water that would have to otherwise be used to grow grapes for the college's wine program.



Reclaimed or recycled water is strictly regulated. The city's reclaimed water is A+ quality, and can be used to irrigate food crops for human consumption. "All water on the earth is reclaimed, every drop taken apart, cleaned, reassembled and reused again," said Roger Biggs, utility administrative manager. "We merely speed up the natural process."

Within the city limits roughly 1.3 million gallons of potable water are produced each day, with about 1.0 million gallons discharged to the wastewater collection system which then passes through the Mingus Avenue Wastewater Treatment Plant. There are seasonal fluctuations due to population and weather. The 0.3 million gallons per day difference, which is normal, results from a combination of houses that receive water service but are not connected to sewer, and outdoor irrigation.

Daily testing is conducted in the city's onsite state certified laboratory. Any results outside the strict Arizona Department of Environmental Quality requirements would jeopardize transfer into the reclaimed water distribution system.

"Construction on Cottonwood's reclaimed water distribution system began in 2002 with the irrigation of Cottonwood Airport median strips and landscaping," said Mayor Diane Joens.

“In addition, a six-inch diameter transmission line, 40,000 gallon reservoir and pump station were built to supply reclaimed water to the public access areas in the Cottonwood Ranch subdivision.”

Reclaimed water for construction use was made available in 2004 and in 2006,” Mayor Joens said. “The city council passed an ordinance mandating the use of reclaimed water for any purpose where potable water was not required.”

The automated reclaimed water fill station is available 24/7 utilizing a prepaid account and PIN access. The cost is \$0.92 per 1000 gallons. Construction, landscaping and street sweeping companies are major customers. Increasingly, private individuals have equipped themselves with trailer mounted tanks and use reclaimed water for residential irrigation.

The Mesquite Hills subdivision receives reclaimed water for irrigation and is the location of the city’s first purple reclaimed water fire hydrant. The Cottonwood Area Transit (CATS) facility located adjacent to the wastewater treatment plant utilizes reclaimed water for vehicle washing, irrigation and flushing of toilets and urinals, the first dual-plumbed facility in the city.

“In April of 2014, the city began supplying reclaimed water to the Southwest Wine Center at Yavapai College,” according to Mayor Joens. The 6200 linear foot six-inch diameter college transmission line which also pumps the reclaimed water up almost 200 feet in elevation, was designed by the city and built through a partnership with the college.

“In response to this increased demand,” said City Manager Doug Bartosh, “the city recycled two 100,000 gallon potable water reservoirs from the former decommissioned Clemenceau Water System and converted them to reclaimed storage reservoirs.” This relocation required a house mover to pull the 33 foot diameter tanks two miles uphill to their current location. A new 480 volt electrical service, two new multi-pump variable drive systems and controls with remote monitoring capabilities were installed.

Construction on the reclaimed distribution network began in 2002 and will continue far into the future. To make reclaimed water use common and acceptable, the system must grow as the city grows. To date the city has installed, or is under contract to install, more than 26,500 feet of purple reclaimed water pipe and plans are in place to add another 16,000 feet of pipe to complete a reclaimed water distribution system loop through central Cottonwood.

Construction costs average between \$50 and \$90 dollars per lineal foot depending on pipe size and location. The pipe is being installed in conjunction with major road reconstruction projects. The planned loop, starting at the Mingus Avenue Waste Water Treatment Plant, will supply reclaimed water to irrigate city parks, schools, fairgrounds, homes and commercial properties that are located along the route.

The need to expand a reclaimed water system into areas of the city that will see future development requires a completely different model. Advancements in wastewater treatment technology have made small satellite treatment plants possible. Traditional treatment

facilities are huge complexes oftentimes located many miles from where the wastewater is produced. This requires long collection and transmission pipelines, massive pump stations and equally massive electrical costs. Small state of the art plants can be located adjacent to the residential and commercial neighborhoods they serve and closer to the areas best served by reclaimed water. This eliminates many of the cost hurdles previously mentioned and created a fundamental philosophical shift—reuse the water where it is created.

This simple concept offers huge benefits in energy savings, transportation costs and increased automation reduces personnel costs.

The first of these small high tech neighborhood treatment facilities is planned for Riverfront Park. The design plans are at 90% plus completion, and the required funding has been identified from capital reserves, awaiting final ADEQ approval to start construction. The planned one-acre 300,000 million gallons per day plant will be 100% solar powered, breakdown pharmaceuticals and personal care products in the waste stream and treated to stringent Verde River discharge standards. However, the A plus reclaimed water produced will be far too valuable a resource to waste. Instead it will be used to irrigate the park grounds, city cemetery grounds, community garden and dog park areas.

Additionally, the old growth cottonwood trees in this area, which give the city its name, will have their water restored. It was lost when the Verde River changed course. Any remaining water will be injected back into the aquifer to replenish future potable water supplies. The State of Arizona, numerous other cities, universities and engineering professionals are watching the city's progress with interest.

In the Southwest, water use has been, is, and will always be a contentious topic. The high costs associated with production, treatment and conveying water make the single use "flush and forget" mentality unsustainable.

Properly treated reclaimed water is not dangerous, unhealthy or infectious. The use of properly treated recycled water as a substitute for potable water where applicable is a must for future growth impacts.

The city of Cottonwood has numerous education programs from pre-school to college level. Organizations such as Keep Sedona Beautiful play a critical role in public education and acceptance of recycled water. Awareness and understanding dispel myths and fears. "One gallon of reclaimed used is one gallon of potable water saved," said Mayor Joens.

For their 2014 awards program, Keep Sedona Beautiful also recognized individuals, businesses and organizations who demonstrated outstanding public or commercial architectural design, exceptional xeriscaping, lighting, signage, conservation or provided exceptional service to the community. The awards honored those who most contributed to the mission of Keep Sedona Beautiful.

Winners were honored at a special Keep Sedona Beautiful Awards of Excellence Celebration luncheon on Jan. 24 at Los Abrigados.

Other awards winners were the U.S. Forest Service for the Burned Area Emergency Response Team who were recognized for environmental stewardship and dedicated efforts after the Slide Fire in Oak Creek Canyon. Sedona Fire District, Chapel Station No. 6 was recognized for architectural and environmentally sensitive design. Friends of the Forest was recognized for 20 years of community service protecting and enhancing the forest experience for residents and tourists alike. The city of Sedona earned the environmental stewardship award for its support and cooperation with KSB in achieving the city's dark sky designation. The Norman McGee Award went to Tom O'Halleran. President Norris Peterson received the Keep Sedona Beautiful highest recognition of an individual who has demonstrated outstanding dedication and service over many years. Volunteer of the year was Jody Marie Smith for her graphic designs.